

THE BLACK BROS. CO. INC.

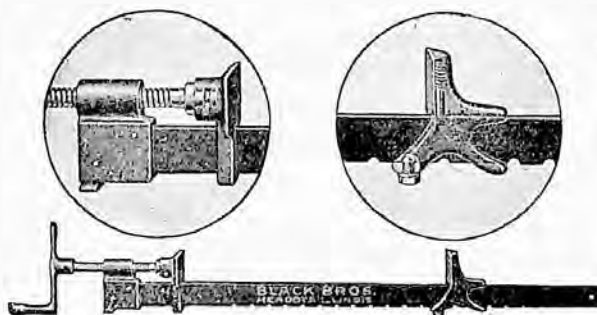
MENDOTA, ILL., U. S. A.

MECHANICAL ENGINEERS AND MANUFACTURERS OF
WOODWORKING MACHINERY — VENEER AND GLUE ROOM EQUIPMENT

BULLETIN 11-B

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BLACK BROS. GLUING CLAMPS



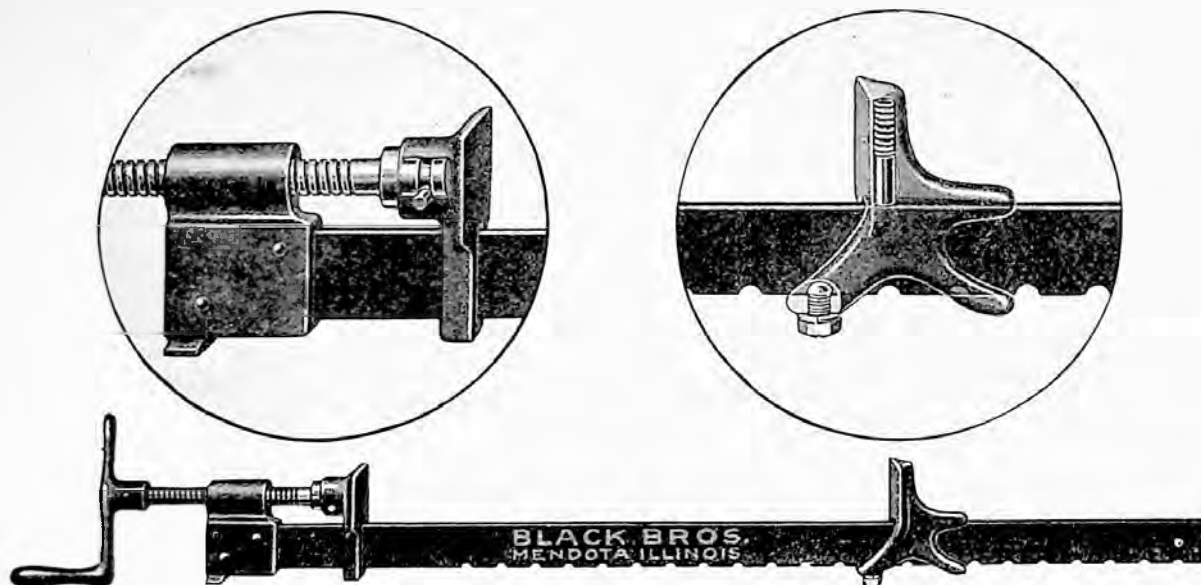
An Extensive Line of Individual Clamps, Designed Primarily for Gluing Operations, Consisting of Bar Clamps, Bar Clamp Fixtures, Hand Screws, Miter Clamps, Column Clamps, Thick Stock Clamps, Carriage Clamps and Piling Clamp Systems.

All are Modern in Design and Unusually Rugged in Construction. They Embody Many Unique and Exclusive Features, which are the Result of Years of Experience and Unusual Production Facilities. A Careful Study of the Following Pages Will Result in the Selection of a Better Clamp for Your Work.

IF IT IS GLUING EQUIPMENT—WE HAVE IT

STEEL BAR CLAMPS

No. 30 BAR CLAMP



This is a powerful general purpose clamp suitable for all sorts of wide gluing up to 2" in thickness. Although moderate in price, it is substantial and powerful, having 2"x2" clamping surfaces, and a 5/16" by 1½" round edge crucible spring steel bar. As a general purpose clamp, it has no equal at anywhere near its price.

SPECIFICATIONS

BAR:—A crucible alloy spring steel is used in the bar, which is remarkably strong and stiff, and which will resist an enormous strain without deflection. It is 1½" deep, 5/16" thick, with the edges rounded to fit the hand.

CASTINGS:—Refined malleable iron is used in all castings, which are much more substantial in their proportions than is usual in a clamp of this kind. Both jaws have 2"x2" clamping surfaces with all other dimensions in proportion.

SCREW:—The screw is ⅝" in diameter with six Acme pattern square threads to the inch, and is turned from a high carbon steel which has exceptional strength and wearing qualities. A noteworthy feature is the **BUTTRESSED SCREW TIP**, shown in the circle to the left above the clamp. On the

back of the front jaw is a deep boss which is drilled to receive the pilot of the screw. A heavy flange is turned on the screw just behind the pilot, which bears against the surface of the boss. This arrangement absolutely prevents the possibility of the screw ever springing out of position, and insures that the pressure will always be delivered along the axis of the screw and squarely against the work.

HANDLE:—This is a single piece malleable casting, which is threaded, riveted and peened to the end of the screw. It is well shaped and oval in section to fit the hand without discomfort.

LOCKING MECHANISM:—Our improved locking mechanism is shown in the circle to the right above the clamp. A concealed coil spring and plunger serve to hold the locking

pin in engagement with a notch on the underside of the bar, which is instantly released by a slight downward and forward pressure. Because of the double guides, the jaw slides easily and without binding to any point on the bar, and locks instantly when released. A hardened locking pin is used which is both renewable and adjustable, and which provides a unique feature, namely, adjustable alignment of the rear jaw, which can be set to be vertical or to tilt forward slightly, simply by turning the threaded portion of the pin.

RAPIDITY:—There is no clamp made which is more easily and quickly adjusted from position to position, irrespective of the type of locking device used. Furthermore the rear jaw stays exactly where it is put, will not slide around the bar when the clamp is handled, and yet can always be adjusted with one hand. As indicated on page 6, this

clamp can be furnished with a serrated instead of a notched bar, providing closer adjustment.

FOR BENCH WORK:—A handy feature of this clamp will be found in the foot cast on the bottom of the front standard, which enables the clamp to stand upright on the bench. Most bar clamps do not have this convenience.

SCREW BEARING:—The length of the screw bearing in the clamp head is three times the diameter of the screw; the correct proportion according to engineering standards for maximum strength. Longer or multiple bearings merely restrict the travel of the screw without adding strength. Our double bearing, one in the clamp head and the other in the front jaw, provides the stiffest and strongest clamp head construction made.

PRICE LIST No. 30 SERIES BAR CLAMPS

(Subject to discount)

No.	Opens inches	Price each	Price per doz.	Net Weight per doz.
30	18"	\$2.93	\$35.00	90 lbs.
31	24"	\$3.00	\$36.00	99 lbs.
32	30"	\$3.13	\$37.50	108 lbs.
33	36"	\$3.25	\$39.00	119 lbs.
34	42"	\$3.38	\$40.50	127 lbs.
35	48"	\$3.50	\$42.00	136 lbs.
36	60"	\$3.75	\$45.00	157 lbs.
37	72"	\$4.10	\$49.00	176 lbs.
38	96"	\$4.60	\$55.00	212 lbs.
39	120"	\$5.20	\$62.00	248 lbs.

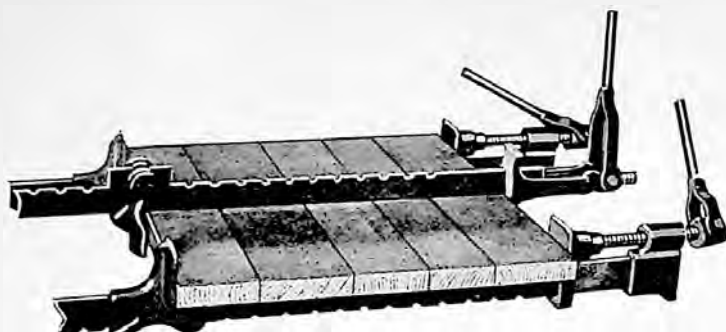
**Lots of less than six
take single clamp
prices; larger lots
the dozen price.**

Longer or intermediate sizes to order.

THE No. 40 STEEL BAR CLAMP

Our No. 40 Bar Clamp is identical in every way with the No. 30 described above except that it has a swiveled handle instead of the malleable crank handle. For illustration and description, see the following page.

THE No. 40 SERIES BAR CLAMP



This clamp is identical in all details with our No. 30 series clamp described on the two preceding pages, with the exception of the handle which is of the swiveled type. Such a handle is adapted to use in corners and other restricted places where a crank handle cannot be turned. A complete description of this handle will be found below in connection with our No. 50 clamp.

PRICE LIST No. 40 SERIES BAR CLAMP (Subject to discount)

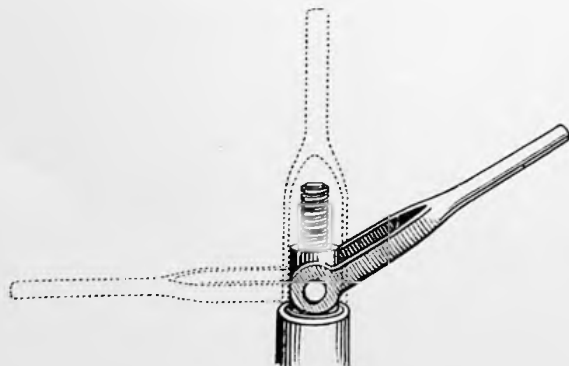
No.	Opens inches	Price each	Price per doz.	Net Weight per doz.
40	18"	\$3.10	\$37.00	94 lbs.
41	24"	\$3.20	\$38.00	102 lbs.
42	30"	\$3.33	\$39.50	111 lbs.
43	36"	\$3.45	\$41.00	120 lbs.
44	42"	\$3.60	\$42.50	129 lbs.
45	48"	\$3.75	\$44.00	140 lbs.
46	60"	\$4.05	\$47.00	159 lbs.
47	72"	\$4.35	\$51.00	177 lbs.
48	96"	\$4.90	\$57.00	215 lbs.
49	120"	\$5.45	\$64.00	252 lbs.

Lots of less than six take single clamp price; larger lots the dozen price.
Longer or intermediate sizes to order.

THE No. 50 SERIES BAR CLAMP

This is the original draw screw clamp in which the front head is stationary, and the pressure is applied by drawing the bar through the front casting, by means of a screw attached directly to the upper edge of the bar. It provides

greater clamping power, size for size, than the compression screw clamp, and is particularly useful when applied to special clamping rigs in which it is desired to keep the front jaws in permanent alignment.



Our swiveled handle is always supplied with these clamps, and is shown diagrammatically to the left. Instead of being rigidly fastened, the handle is free to swing on a pivot to assume the various positions shown. It has two advantages, as it can be used in places where a solid crank cannot be turned, and also can be shifted instantly to the most convenient position for leverage. It does this more quickly than the drop pin type, as it is not necessary to let go of the handle or change hands each time the position is shifted.

THE No. 50 CLAMP (Continued)



BAR:—Round edge crucible spring steel is used in the bars, insuring the maximum strength for a given weight.

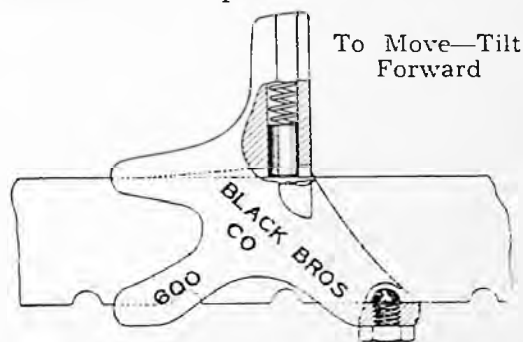
CASTINGS:—All castings are refined malleable iron unusually liberal in their proportions.

SCREWS:—In this clamp the screw is double riveted to the front end of the bar. They are cut with the approved Acme pattern thread from high carbon steel of exceptional strength and wearing qualities.

LOCKING MECHANISM:—Our regular rear jaw locking mechanism is used, as shown in outline herewith. It is very rapid, locks securely, stays where it is put, and can always be manipulated with one hand. It is normally held in engagement by the spring, and is released by a slight forward pressure. As indicated on the page following, a serrated bar can be furnished instead of the

notched bar as shown. The action is the same, but a somewhat closer adjustment is provided.

IN GENERAL:—This clamp is provided with feet and will stand upright on the bench, and is always supplied with the swiveled handle. It is made in three weights as indicated in the price list below.



Hardened Steel Locking Pin, Adjustable and Renewable.

PRICE LIST No. 50 SERIES BAR CLAMP

Light pattern:—5/16" x 1 1/4" bar, 5/8" screw, 1 5/8" x 1 7/8" jaws.

No.	Opens	Price each	Price doz.	Weight doz.
50-L	18"	\$2.90	\$33.50	84 lbs.
51-L	24"	\$2.93	\$35.00	90 lbs.
52-L	30"	\$3.05	\$36.50	96 lbs.
53-L	36"	\$3.19	\$38.00	102 lbs.

Medium pattern:—5/16" x 1 1/2" bar, 3/4" screw, 1 7/8" x 2" jaws.

No.	Opens	Price each	Price doz.	Weight doz.
51-M	24"	\$3.19	\$38.00	102 lbs.
52-M	30"	\$3.30	\$39.50	114 lbs.
53-M	36"	\$3.45	\$41.00	120 lbs.
54-M	42"	\$3.55	\$42.50	129 lbs.
55-M	48"	\$3.69	\$44.00	138 lbs.
56-M	60"	\$3.93	\$47.00	156 lbs.

Heavy pattern:—5/16" x 1 3/4" bar, 3/4" screw, 2" x 2 1/4" jaws.

No.	Opens	Price each	Price doz.	Weight doz.
51-H	24"	\$3.43	\$41.00	126 lbs.
52-H	30"	\$3.55	\$42.50	138 lbs.
53-H	36"	\$3.68	\$44.00	150 lbs.
54-H	42"	\$3.80	\$45.50	162 lbs.
55-H	48"	\$3.93	\$47.00	174 lbs.
56-H	60"	\$4.18	\$50.00	198 lbs.
57-H	72"	\$4.43	\$53.00	222 lbs.
58-H	96"	\$4.93	\$59.00	270 lbs.
59-H	120"	\$5.43	\$65.00	318 lbs.

Intermediate sizes proportional, longer lengths to order. Less than 1/2 dozen clamps take single clamp price, 1/2 dozen or more, the dozen price.

RAPID ACTING ADJUSTABLE JAWS

For All Steel Bar Clamps



Self Locking at All Points
of the Bar

All steel bar clamps made by us can be furnished with a serrated or saw tooth bar instead of the notched bar. This provides a closer adjustment to the work and is preferred by some for that reason. The action of the locking mechanism is identical with our regular type except that the hardened locking pin is replaced by a swinging saw tooth block, which mates with the notches on the lower edge of the bar. As pressure is applied to the front of the

rear jaw, the jaw rotates about its pivot in the saw tooth block, forcing these notches in closer engagement as the pressure increases.

This is not only the most rapid and durable of all self locking, rapid acting devices, but it has advantages that others do not possess. It can always be operated with one hand, always stays exactly where it is put and does not slip about on the bar when not under pressure, and further it never sticks, but can always be released instantly when desired.

To obtain the price of clamps equipped with this jaw, add \$6.00 to the list price per dozen, or 50c each and take the usual discount. Specify the number of the clamp, and state the serrated bar is desired.

WOOD BAR CLAMP FIXTURES

The No. 70 Malleable Fixture



This fixture is built along the same lines, and is a companion piece to our No. 30 steel bar clamp. Similar features are incorporated in it and all essential details are similar except the wooden bar. It is made to fit hardwood bars of

any length, and provides a rapid, convenient, powerful and dependable clamp at moderate expense. They are useful also for constructing an infinite variety of special clamping rigs and fixtures.

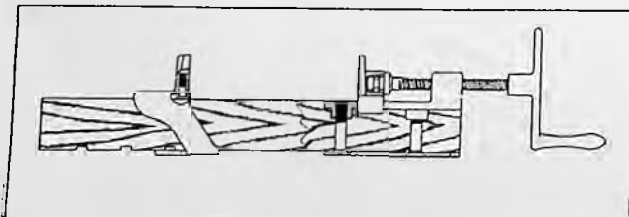
SPECIFICATIONS

BARS:—These are not furnished by us, but should be hard maple or other suitable wood, $1\frac{3}{8}$ " wide by $2\frac{1}{2}$ " deep and the required length.

CASTINGS:—All castings are refined malleable iron, and are about twice the weight and size of the usual clamp of this order. The clamping jaws are 2" wide by $2\frac{1}{2}$ " deep, with the other dimensions in proportion.

CONSTRUCTION:—A sectional view of the clamp is shown by the line drawing to the left, illustrating the constructional details.

HEAD:—It will be seen that the head is fastened by two $\frac{1}{2}$ " machine bolts, extending from the upper bed plate to a steel reinforcing plate below, and also that there are two cast lugs extending from the bed



No. 70 CLAMP FIXTURE (Continued)

plate and mortised into the wood to anchor the head in position. The moveable jaw has guides which surround the edges of the bed plate, and keep the head from springing out of position.

SCREW:—Our “buttressed” screw tip is used, providing a bearing for the screw at each end in addition to the thrust bearing formed by the flange. Delivery of the pressure directly along the axis of the screw, and squarely against the work is insured by this construction.

HANDLE:—The handle is a single piece malleable crank, riveted, threaded and peened in place. It is designed with broad round surfaces to fit the hand without discomfort.

REAR JAW:—This embodies our standard locking principle. A cast lug is held in engagement with a slot cut on the under side of the bar, and is normally held in the locked position by a concealed coil spring. A slight forward movement releases the lug, allowing the paw to be moved to the desired position. This jaw has the same virtues as our higher priced clamps, namely, it can be operated with one hand, remains exactly where it is placed, and does not slip around when the clamp is handled. It is quickly moved from position to position, and never sticks or binds.

PRICE:—No. 70 Malleable Wood Bar Clamp Fixtures. All metal parts each \$1.75. Per doz., \$21.00. Net weight per dozen, 72 lbs.

THE No. 60 MALLEABLE WOOD BAR CLAMP FIXTURE



The No. 60 wood bar clamp fixture is a companion piece to the No. 50 steel bar clamp, as it embodies the same features. It operates on the draw screw principle, that is, the bar with the rear adjustable jaw is drawn through a stationary front head when the pressure is applied. In capacity and clamping power, it is the same as the No. 70 clamp, having 2" x 2½" clamping surfaces, and fits a 1⅜" x 2½" bar.

CASTINGS:—All castings are refined malleable iron very liberally proportioned.

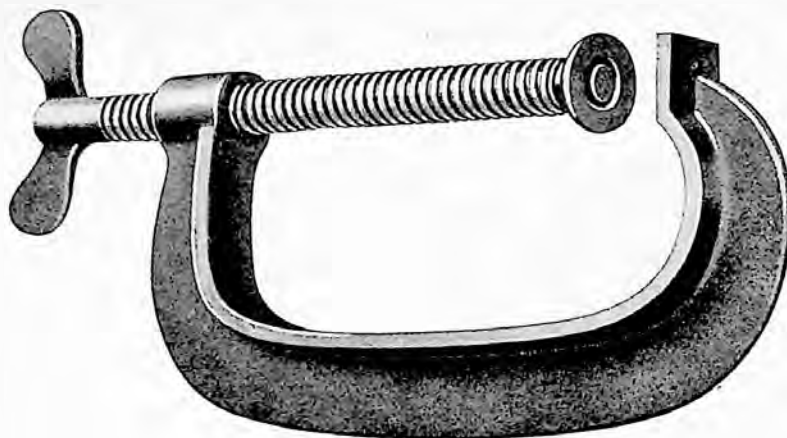
HANDLE:—This is the swiveled type, very convenient and powerful.

SCREW:—As shown in the cutaway portion of the illustration, the screw is anchored to the bar, making a very durable and permanent fastening.

JAWS:—The rear jaw and locking device are the same as the No. 70 clamp, while the front jaw is arranged so that it may be held stationary and in line with others, when several clamps of this type are used in clamping fixtures.

PRICE:—No. 60 Malleable Wood Bar Clamp Fixtures, per set \$1.75; per doz. \$21.00; weight per dozen, 66 lbs.

A SUPERIOR MALLEABLE CARRIAGE CLAMP



There is a real difference in malleable carriage clamps in spite of the fact that all makes appear to be similar in general specifications, price, weight, etc. This difference lies in the materials of which they are made.

Merely to say malleable iron is not enough as there is no material in the entire ferrous metal group which varies more in physical characteristics or chemical composition than

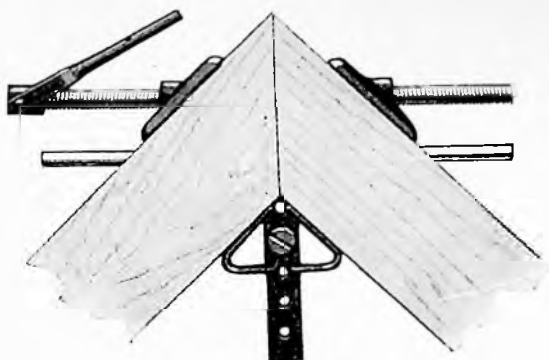
that which is sold under the trade name of malleable iron. The malleable iron of which these clamps are made is one that possesses all the requisite characteristics for perfect service in clamps, namely high tensile strength, high elastic limit and yield point, and exceptional resistance to shock. It is moreover remarkably free from hidden or surface flaws, and is uniform in structure. Any clamp that develops a hidden casting defect will be replaced.

PRICE LIST MALLEABLE IRON CARRIAGE CLAMPS

(Subject to discount)

We can furnish carriage clamps with either the steel screw with riveted malleable wing, or with a malleable screw and wing cast in one piece. If you have a preference, please so state.	No.	Opens	Depth of	Weight	Price
			Throat	Doz.	Doz.
	2	2½"	1½"	15	\$ 9.00
	3	3"	1½"	17	10.00
	4	4"	2"	21	12.00
	5	5"	2⅛"	28	15.00
	6	6"	2½"	31	18.00
	7	7"	2½"	37	22.00
	8	8"	3½"	45	28.00
	10	10"	4"	62	36.00
	12	12"	4½"	84	46.00

THE BLACK BROS. MITER CLAMP

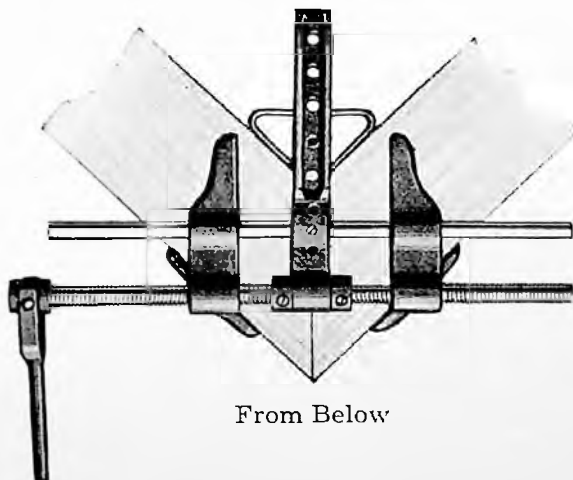


From Above

PURPOSE:—This miter clamp is primarily intended for flat miter joints, such as are met with in interior trim, cabinet work, etc., and for such applications it has been very successful and is widely used.

CAPACITY:—We now make this clamp in one size only, the No. 2, with an 8" capacity, which is adjustable to any smaller size.

CONSTRUCTION:—In its construction this clamp is unique; there is no other like it. pressure is applied to the miter by grasping it between a compressible steel triangle and two mitered jaws, which move in and out on a screw, threaded right hand on one end and left on the other. Several positions for the triangle are provided on the bar, providing rapid adjustment to miters of



From Below

different widths. It should be particularly noted that this clamp applies the pressure at RIGHT ANGLES to the surfaces to be joined, and it is the only miter clamp so made. All other clamps apply an oblique, and therefore less effective, pressure.

NO HOLES TO DRILL:—As the work is grasped on both the inner and outer edges, it is not necessary to drill holes in the wood to attach the clamp, or to provide the jaws with spikes or prongs to injure the work.

ADJUSTABILITY:—The hollow spring steel triangle which forms the back jaw compresses under pressure, and conforms automatically to reasonable variations in the stock.

HANDLE AND SCREW:—A stiff high carbon steel rod is used for the pressure screw, which is $\frac{5}{8}$ " in diameter and is threaded right and left with a special steep pitch thread. Our convenient swiveled type handle is regularly supplied with this clamp.

FORMS FOR SPECIAL WORK:—Both angled jaws are drilled so that forms may be attached with screws to conform to mouldings, etc.

USED IN MULTIPLE:—These clamps may be used either singly, or in multiple, as shown below. As many clamps as needed may be arranged in any desired conformation, in which case they are held in place on a rail by holders which attach to both the clamp and the rail. These holders are regularly furnished to hold the center line of the clamp at an angle of 45 deg., either to the right or left of the rail. The holders are not included in the price of the clamp but are an extra as noted below.



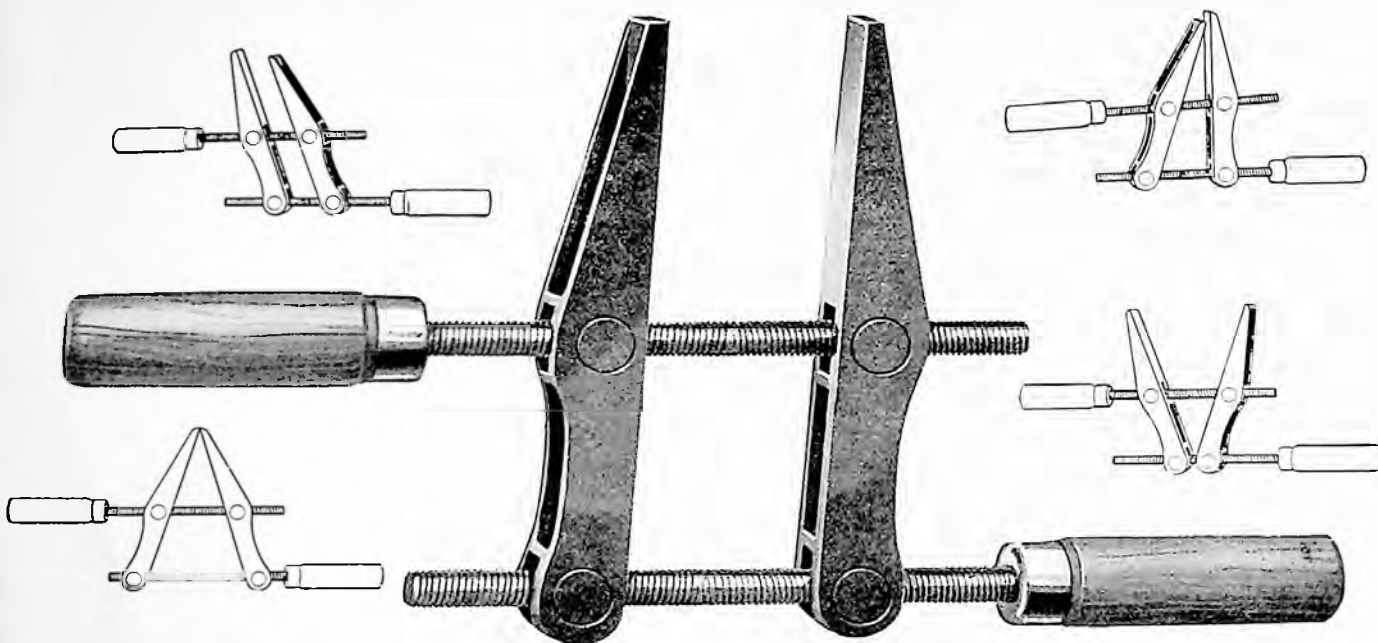
PRICES

No. 2—8" Miter Clamp, each \$3.25; in lots of one dozen or more \$37.50 per doz. Holders, either right or left hand, 45 deg., each \$0.40. Weight of clamp 7 lbs. each; holders 4 lbs. each.

HERE IS A NEW ONE - -

MALLEABLE IRON JAW, STEEL SPINDLE HAND SCREW

(No Handier Tool in the Shop)



This adjustable hand clamp is all metal except the handles, and is one of the handiest clamping devices ever introduced. It is light and durable, adjusting to any of the positions shown, or to

any intermediate position. To fully appreciate the value and convenience of this clamp, simply order a sample. No obligation if you do not like it.

SPECIFICATIONS

JAWS:—First quality malleable iron, deeply ribbed for strength and planed on the clamping surface.

HANDLES:—Seasoned hard maple screwed and riveted to the spindles, and reinforced by a polished steel ferrule.

SCREWS:—Special die drawn steel, cut right and left hand with a rapid but powerful double pitch thread.

SPINDLE SOCKETS:—Die drawn steel, fitted to rotate in the paws to provide the non-parallel adjustments.

PRICE LIST OF BLACK BROS. MALLEABLE HAND SCREWS

No.	Length of jaw	Opening inches	Price each	Price per doz.	Weight per doz.
1-S	5½"	3"	\$1.50	\$18.00	20
2-S	7½"	5"	\$1.75	\$21.00	29
3-S	9"	7"	\$2.00	\$24.00	39

The above are stock sizes. Special clamps to order.

This clamp is equally well adapted to wood or metal working.

ADJUSTABLE STEEL SPINDLE HAND SCREW MAPLE JAWS

The hand screws of our manufacture are recognized as the most substantial and liberally proportioned of any clamp of the kind. They are carefully made and are somewhat larger, size for size, than other makes. If in doubt, order a sample.

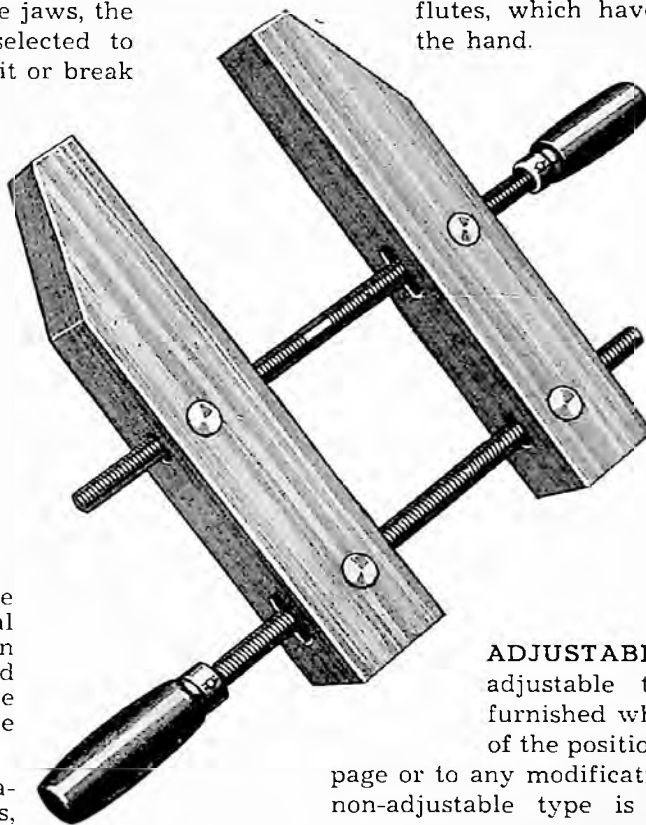
THE JAWS:—Seasoned Michigan rock maple is used in the jaws, the wood being carefully selected to avoid stock that will split or break under strain. They are carefully machined and nicely sanded and oiled.

SCREWS:—Instead of the usual cold rolled steel, a special die drawn stock is used in the screws. Such a material has no hard outer case, and does not spring out of true when threaded. A double right and left hand thread is used, providing a combination of speed and power.

SOCKETS:—These are also made of the special extra strong die drawn stock, and are mounted to rotate, supplying the clamp with its adjustable features.

HANDLES:—Hard maple is used in the handles, which are usually large,

giving ample power without the use of flutes, which have a tendency to injure the hand.



PROPORTIONS:—The proportions of these hand screws are scientifically correct, and they will exert the maximum pressure with the minimum turning effort. They will also be found to be free from the defect exhibited by certain clamps of this type, which show a tendency to loosen after they have been set. The unshakable grip is essentially a matter of correct proportion.

ADJUSTABILITY:—Ordinarily the adjustable type of this clamp is furnished which will conform to any of the positions shown on the opposite page or to any modification of them. If the rigid non-adjustable type is desired, these will be supplied, but non-adjustable must be specified.

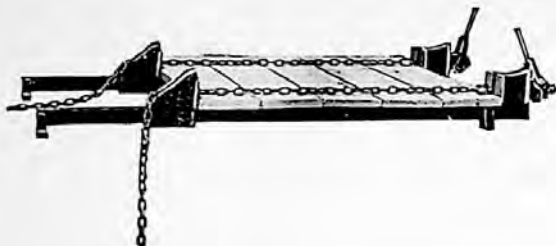
PRICE LIST OF BLACK BROS. STEEL SPINDLE HAND SCREWS (Adjustable Type)

No.	Length of jaw	Opening inches	Price per doz.	Weight per doz.
5/0	4"	2"	\$15.00	6 lbs.
4/0	5"	2½"	\$16.20	7 lbs.
3/0	6"	3"	\$18.00	11 lbs.
2/0	7"	3½"	\$19.20	14 lbs.
0	8"	4½"	\$21.00	25 lbs.
1	10"	6½"	\$24.00	33 lbs.
2	12"	8½"	\$27.00	53 lbs.
3	14"	10½"	\$30.00	61 lbs.
4	16"	12½"	\$36.00	90 lbs.
5	18"	14½"	\$42.00	105 lbs.
6	20"	15"	\$48.00	118 lbs.
7	24"	18"	\$60.00	135 lbs.

Intermediate
or Special
Sizes to
Order

THE BLACK BROS. SINGLE CHAIN CLAMP

(For Work up to 3 1/4" Thick)



In our chain clamp, we offer a distinctly original, but nevertheless thoroughly tried and proven clamping device, which has solved many a difficult gluing problem. They are offered in two general styles, the single chain clamp illustrated herewith, and the double chain clamp shown on the opposite page. Together they supply a complete line of clamps for heavy gluing up to and including 16" in thickness.

PRINCIPLE:—The clamping principle involved is very simple. A stationary jaw is securely riveted to the front end of the clamp bar, and a sliding rear jaw adjusts to any position on the bar. After the stock to be glued is put in place, the rear jaw is pushed

up against it, and the chain, which is the pressure applying member, is dropped into a slot in the rear jaw at the proper link. A few turns of the long powerful swiveled handle places the stock under a powerful pressure with remarkably little effort.

SPECIFICATIONS

CASTINGS:—All castings in these clamps are made of a good grade of semi-steel, and are very liberal in their proportions. In all sizes of chain clamps, feet are provided so that the clamp will stand upright on the floor or bench.

CHAINS:—Electrically welded proof tested chain is furnished with these clamps, every foot of which has been tested to its full safe working load before being accepted. The size and shape of the links are absolutely uniform.

SCREWS:—These are cold drawn steel with lathe cut square threads, ample in diameter, and generous in length.

HANDLE:—Our regular type of swiveled handle is supplied, which is particularly desirable on a clamp of this kind because of its convenience and power.

SIZES:—Two sizes are now supplied in the single chain type, the No. 5 with a capacity of 2 1/4" as to depth, and the No. 9 with a capacity of 3 1/4". Both are furnished in any length.

PRICE LIST SINGLE CHAIN CLAMPS

Per Dozen

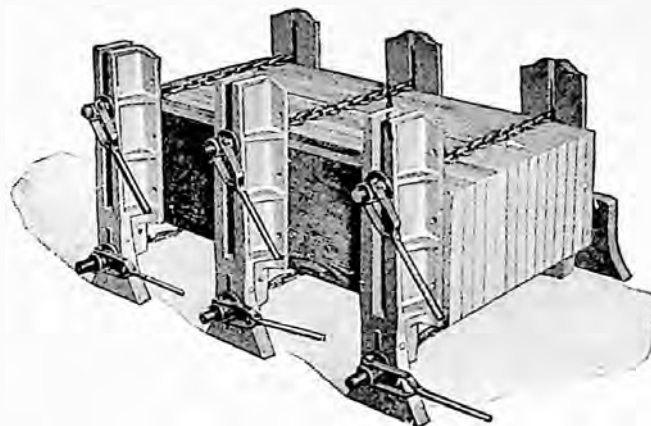
(Subject to discount)

No. 5		No. 9	
Clamps in thickness up to	2"	Wt. per dozen	3"
Size of Bar	3/4"x1 3/4"		3/4"x2"
Dist. Clamp Will Open			
2' long	\$78.50	318	\$88.00
2' 6" long	\$80.50	336	\$90.00
3' 0" long	\$82.50	354	\$92.00
3' 6" long	\$84.50	372	\$94.00
4' 0" long	\$86.50	390	\$96.00
5' 0" long	\$90.50	426	\$100.00
6' 0" long	\$94.50	462	\$104.00
8' 0" long	\$102.50	534	\$112.00
			Wt. per dozen
			414
			438
			462
			486
			510
			558
			606
			702

Special or intermediate sizes to order.

THE BLACK BROS. DOUBLE CHAIN CLAMP

(For Stock Up to 16" Thick)



The double chain clamp is similar to the single chain clamp described on the opposite page, except that it has greater capacity, and is provided with a chain pressure applying member below the stock in addition to the one above. A complete range of sizes is offered with capacities from 4" to 16" thick. They provide a rapid, powerful and efficient clamp for all sorts of heavy gluing, such as is met with in laboratory furniture, heavy post blocking, bowling alleys, compound blocks, thick veneer cores, face veneering on long narrow work, such as door stiles and rails, etc., etc.

SPECIFICATIONS

CASTINGS:—These are close grained semi-steel, liberally proportioned, and planed true on the clamping surfaces. The front jaw and the rear foot are designed to allow the clamp to stand upright on the floor or bench.

and provide an enormous pressure with surprisingly little effort.

BARS:—The stock to be clamped rests on a steel bar (obscured in the cut) which is made of high grade carbon steel of extra strength and quality.

SCREWS:—High grade die drawn screw stock is used, with deep, powerful lathe cut square threads.

CHAINS:—A high grade electrically welded chain is used, which is exceptionally strong, and is uniform in size and shape of the links.

OPERATION:—When using these clamps, the required number are set up so that the front jaws are in line (the illustration shows three complete clamps) and the stock to be glued is piled up against the front or stationary jaw. The rear or sliding jaw is then pushed against the back of the stock, and the chains engaged at the proper notch. A few easy turns of the long handles apply ample pressure.

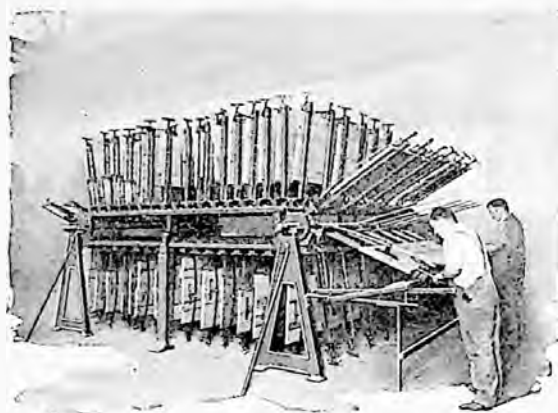
HANDLES:—Long swiveled type handles are used, which are the last word in convenience,

PRICE LIST DOUBLE CHAIN CLAMPS

		Per Dozen									
		No. 17		No. 20		No. 21		No. 24		No. 27	
		Clamps on thickness up to 4"		6"		8"		14"		16"	
		Size of bar	Wt. doz.	3/4"x2"	Wt. doz.	3/4"x2"	Wt. doz.	1 1/2"x2"	Wt. doz.	1 1/2"x2"	Wt. doz.
Dist. Clamp Will Open	2' 0"	\$168.00	636	\$172.00	720	\$176.00	900	\$269.00	1380	\$300.00	1580
	2' 6"	\$172.00	681	\$176.00	765	\$180.00	945	\$273.00	1430	\$304.00	1630
	3' 0"	\$176.00	726	\$180.00	810	\$184.00	990	\$277.00	1480	\$308.00	1680
	3' 6"	\$180.00	771	\$184.00	855	\$188.00	1035	\$281.00	1530	\$312.00	1730
	4' 0"	\$184.00	816	\$188.00	900	\$192.00	1080	\$285.00	1580	\$316.00	1780
	5' 0"	\$192.00	906	\$196.00	990	\$200.00	1170	\$293.00	1680	\$324.00	1880
	6' 0"	\$200.00	996	\$204.00	1080	\$208.00	1260	\$301.00	1780	\$332.00	1980
	8' 0"	\$216.00	1176	\$220.00	1240	\$224.00	1440	\$317.00	1980	\$348.00	2180

CLAMP CARRIER CLAMPS

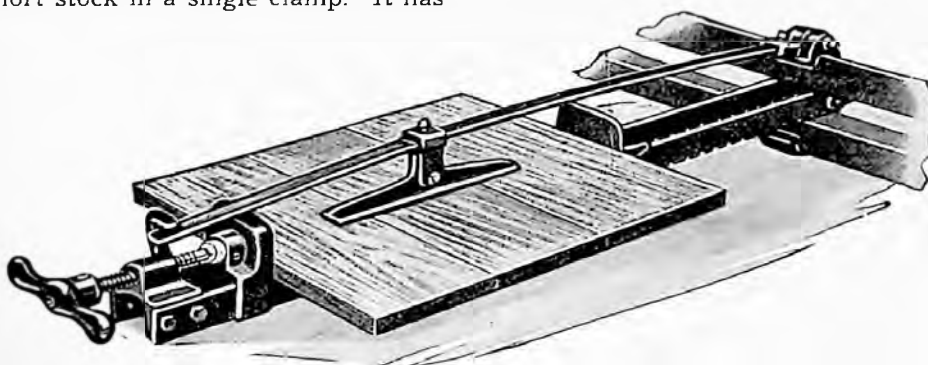
Several of the clamps used on our line of glue clamp carrying machines have been found very valuable for use as individual clamps. They are all powerful clamps, and will perform perfectly many operations beyond the range of the usual bar clamp. As illustrated herewith, they are shown with the attachments usually used to fasten them to a carrier, but as individual clamps, these are superfluous, and therefore are not usually supplied.



STYLE C "COMPRESSION SCREW CLAMP"

This is a powerful clamp having jaws $2\frac{1}{2}$ " deep and 4" wide, with a double platform suitable for balancing short stock in a single clamp. It has

a $\frac{3}{8}$ " screw and may be furnished with or without a top hold down bar.



SPECIFICATIONS

The compression screw operating principle is used in which the front jaw is pushed against a stationary rear jaw, as compared to the draw screw type illustrated on the opposite page. The rear jaw of course is adjustable to various positions on the bar.

BARS:—These are crucible steel $5/16$ " wide by $1\frac{1}{2}$ " deep with rounded edges. This material is nearly twice as strong as ordinary machinery steel.

CASTINGS:—All castings are certified malleable iron, very liberal in their proportions.

SCREW:—High carbon steel is used in the screw, which is cut with an Acme type thread, six to the inch. Our "buttressed" type of screw tip is used in which the screw is provided with a large flange at the point where it bears against the front jaw, insuring that the pressure will always be along the axis of the screw and square with the stock.

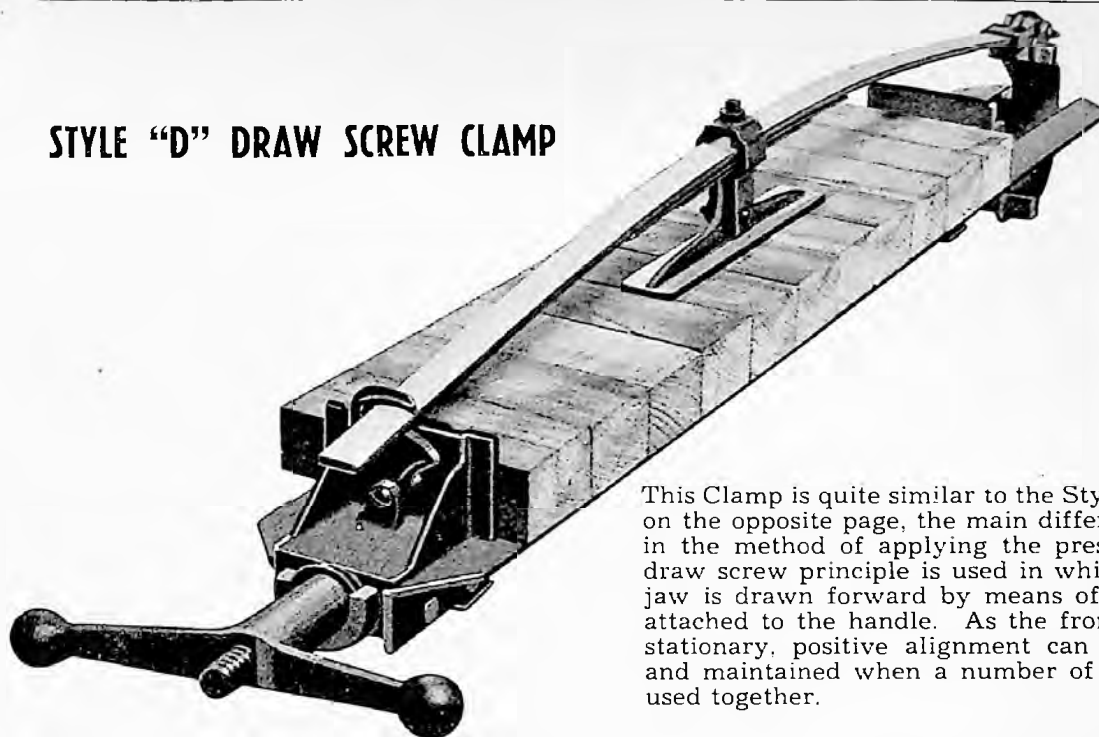
PRICE LIST STYLE "C" CLAMP (Per Dozen)

Without Hold Downs					
No. 1-C	24"	\$60.00	No. 6-C	60"	\$78.00
No. 2-C	30"	\$63.00	No. 7-C	72"	\$84.00
No. 3-C	36"	\$66.00	No. 8-C	84"	\$90.00
No. 4-C	42"	\$69.00	No. 9-C	96"	\$96.00
No. 5-C	48"	\$72.00	No. 10-C	108"	\$102.00

Longer or intermediate sizes proportional.

Add 20% to list for hold downs.

STYLE "D" DRAW SCREW CLAMP



This Clamp is quite similar to the Style C shown on the opposite page, the main difference being in the method of applying the pressure. The draw screw principle is used in which the rear jaw is drawn forward by means of a pull rod attached to the handle. As the front jaws are stationary, positive alignment can be secured and maintained when a number of clamps are used together.

SPECIFICATIONS

BARS:—These are crucible spring steel $1\frac{1}{2}$ " deep by $\frac{5}{16}$ " with rounded edges, and are made of a special analysis that is exceptionally strong and stiff. Angle bars as shown are optional.

CASTINGS:—All castings are refined malleable iron of very generous proportions.

CAPACITY:—These clamps are furnished in any length, and in TWO HEIGHTS OF jaws $2\frac{1}{2}$ " high, and the high model jaw is 4" high.

SCREW AND DRAWBAR:—The screw is high carbon steel cut with an Acme type thread,

attached to a drawbar which engages and draws the rear jaw forward. This drawbar is of improved design, and unlike similar clamps, it is not set flat, but with its major axis vertical. For this reason, it will not bend up and out of shape.

HOLD DOWN:—A spring steel hold down as illustrated can be furnished with this clamp if wanted. It is useful for preventing thin stock from springing out of shape when placed under pressure. The hold down on the 4" clamp is of slightly different pattern than the illustration, having a round spring bar and attaching to the rear jaw rather than the rear attachment casting.

PRICE LIST STYLE "D" CLAMPS (Per Dozen) Without Hold Downs

$2\frac{1}{2}$ " Deep Jaws			4" Deep Jaws		
No. 1-D	24"	\$60.00	No. 21-D	24"	\$64.00
No. 2-D	30"	\$63.00	No. 22-D	30"	\$67.00
No. 3-D	36"	\$66.00	No. 23-D	36"	\$70.00
No. 4-D	42"	\$69.00	No. 24-D	42"	\$73.00
No. 5-D	48"	\$72.00	No. 25-D	48"	\$76.00
No. 6-D	60"	\$78.00	No. 26-D	60"	\$82.00
No. 7-D	72"	\$84.00	No. 27-D	72"	\$88.00
No. 8-D	84"	\$90.00	No. 28-D	84"	\$94.00
No. 9-D	96"	\$96.00	No. 29-D	96"	\$100.00
No. 10-D	108"	\$102.00	No. 30-D	108"	\$106.00

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Add 20%

to either

style for

hold downs.

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STYLE "E" CLAMP --- 7 INCH CAPACITY

This is the heaviest of our carrier clamps, and is made to take a maximum capacity of 7" deep. It is built along the same general lines as the Style D on the preceding page, except that it

has deeper jaws and the upper draw bar. It is suitable for all varieties of heavy gluing not exceeding 7" in depth.

SPECIFICATIONS

BARS:—Crucible spring steel 2" x 5/16".

CASTINGS: — Refined malleable iron unusually liberal in proportions.

SCREW AND DRAW-BAR: — The draw screw principle is employed, both draw-bars being 1" x 1/4" with the 1" dimension vertical. They can not spring out of shape as flat drawbars will.

CAPACITY:—These clamps are made any required length, and with jaws to take a maximum of 7" deep. The top draw bar runs in slots down through the center of the jaws, and rests directly on the top of all

stock over 3 1/2" thick. A far more efficient clamp is therefore provided than similar clamps in which the upper draw bar is attached to the top of the castings.

Another feature is the fact that the upper drawbar need not be removed to fill the clamp. When lifted to the elevated position, it locks automatically in the rear casting.

PRICE LIST STYLE E CLAMP (Per Doz.)

1-E	24"	\$85.20
2-E	30"	\$92.40
3-E	36"	\$99.60
4-E	42"	\$106.80
5-E	48"	\$114.00
6-E	60"	\$128.40
7-E	72"	\$142.80
8-E	84"	\$157.20
9-E	96"	\$171.60
10-E	108"	\$186.00

NOTE:—This clamp is now available in the 10" and 14" depths. Prices will be furnished on request.

Intermediate sizes proportional.

THE BLACK BROS. COLUMN CLAMP



Our column clamp is a useful tool, intended for clamping all sorts of round forms, such as wood columns, table pedestals, cylinders, concrete forms, pipes, etc., which has met with more than usual success. Its universal acceptance as standard for such work arises out of its speed, convenience, clamping power and durability.

CONSTRUCTION:—The clamp consists of a cast head roughly triangular in shape, through which is passed a heavy steel screw with a welded chain attached. The chain is hooked to the opposite side of the block, and pressure is applied by tightening the screw.

TANGENTIAL PRESSURE:—Effectiveness of the application of pressure is insured by the fact that the screw is placed to apply the pressure at a tangent to the column, a

feature found in no similar clamp. The hook to which the free end of the chain is fastened also is swiveled so that it assumes a tangent to any diameter of column.

SPECIFICATIONS

HEAD:—The head is cast in the shape of a triangle and is furnished with either a flat bottom as shown, or a compound curve which will fit any radius within the capacity of the clamp.

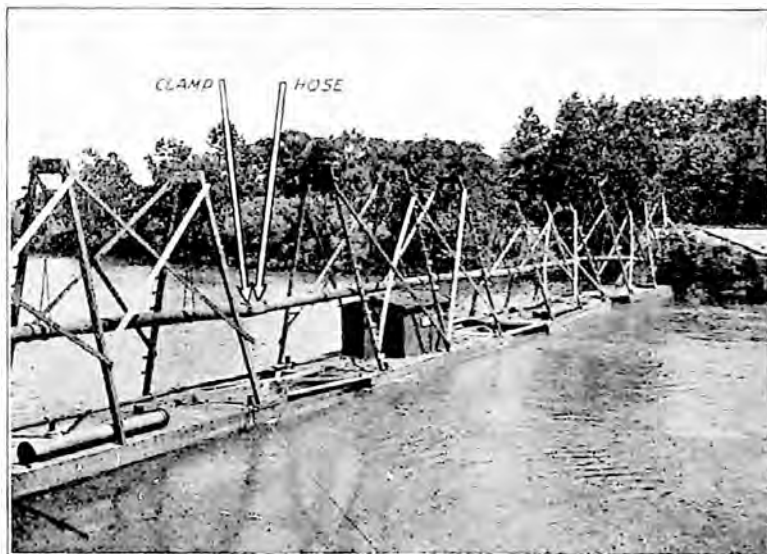
SCREW:—Die drawn steel is used for the screw, which is cut with a deep Acme pattern thread.

CHAIN:—The chain is the electrically welded type, and is remarkably uniform in size and shape of link. Each chain is tested to beyond its normal working load before acceptance,

and has several times the strength of the formed wire chains frequently used on similar clamps.

HANDLE:—Our regular swiveled type of handle is used, which permits a tremendous pressure to be applied with unusual ease.

FOR USE ON PIPE LINES:—Thousands of these clamps are used for clamping rubber sleeves to hydraulic pipe lines in dredging and in sand and gravel mining operations. They are used and considered standard for this purpose by the U. S. Engineering Dept., and by many private engineering concerns. The illustration below shows this application.



PRICE LIST BLACK BROS. COLUMN CLAMP

No.	Diam. of screw	Length of chain	Price per doz.	Weight per doz.
1	3/4"	4'	\$35.00	100
2	1"	6'	\$48.00	150

Weights are net and do not include packing. Extra chain No. 1 Clamp. 20c per foot; No. 2. 25c per ft.

THE BLACK BROS. PILING CLAMP

No. 80 SERIES

Our No. 80 series of piling clamps is the one real improvement in equipment of this character made in the past decade. It eliminates the shortcomings of the older types in striking fashion, which were mainly lack of adaptability and range of application. This system combines the obvious value of the piling idea with the versatility of the individual clamp.

**NOTHING
TO IT - -**



**- - BUT THE
CLAMP**

SIMPLICITY:—Simplicity is the keynote of this system, as it consists of nothing but the clamp itself.

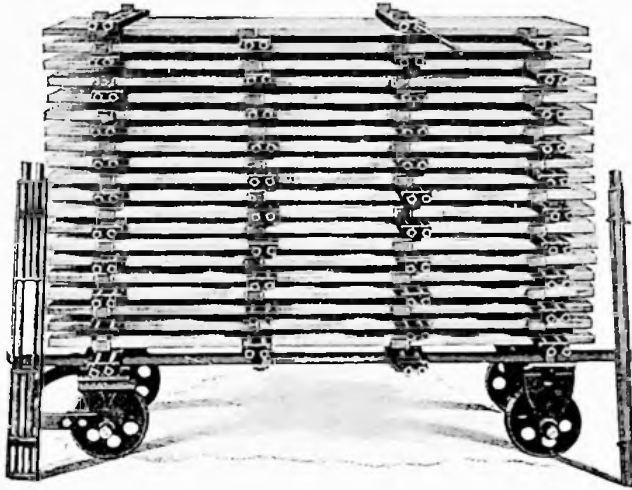
THE CLAMP:—The clamp is double, consisting of a rectangular steel frame, which carries two screws running the full length of the clamp, and to which the clamp jaws are attached in such a manner that one set of jaws is on each side of the frame. Each screw is threaded right hand on one end and left hand on the other, with a special steep pitch thread, causing the jaws to close rapidly when the screw is rotated. In use, one set of jaws clamps the work below, and the other set the work above, binding the pile rigidly together.

HOW THEY ARE USED:—To grasp the idea of the No. 80 piling clamp system, it is only necessary to understand the construction of the clamp, as explained above and shown in the illustration to the left. The double clamping unit, one clamp on each side of the frame, is the basis of the system.

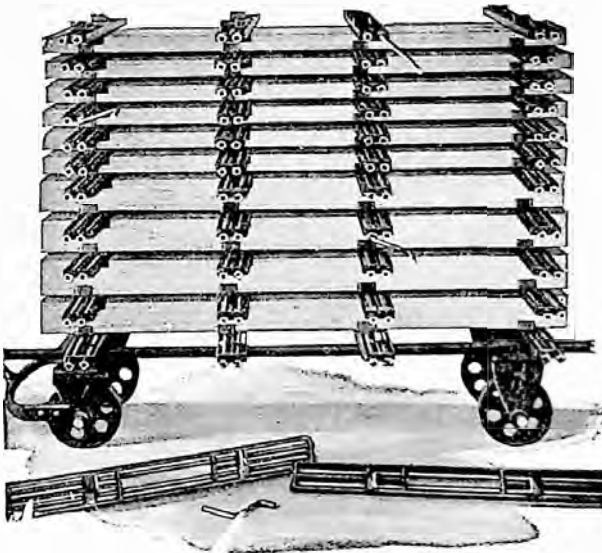
To build up a pile, a suitable truck, bench or platform is used, and to which two or more clamps are attached by means of the lower clamping jaws. The first course of boards to be glued is laid in the upper jaws, and clamped by means of the detachable handle. Two, or as many more clamps as are required, are placed on top of the work and the lower jaws tightened. It will be noted that half of the clamping pressure is applied from above and the other half from below, neutralizing any tendency to buckle. Then place the second course of joints in the upper clamps of the second tier, tighten and place another row of clamps on top. By repeating the operation, the pile can be built to any required height.

It is usual to place the clamps directly one above the other, as shown in the illustrations, but it is not essential that they be so used, as the clamps are independent and may be placed anywhere on the stock. An extra clamp can be used here and there, where a difficult joint requires it. Also it is not necessary that the work in any one pile be uniform in any dimension.

THE No. 80 PILING CLAMP (Continued)



This cut shows the No. 80 clamp in use on 1" stock. Please note that there are 42 clamps shown, clamping twenty tops in four places each, or doing the work of eighty single clamps. The fact that each clamp is double should be borne in mind in estimating the cost of the system.



This cut shows the clamps in use on 2" and 4" stock. Note that the work is gripped on both the upper and lower edge insuring even pressure. The unusual popularity of this system rests largely on the quality of the work it produces.

TRUCKS:—We do not furnish trucks with these clamps, as no special truck is required. Any factory truck, bench or stand will do.

AS COMPARED WITH OTHER SYSTEMS

The No. 80 is a screw clamp, as we have never believed that an eccentric has either the clamping power or the range of adjustability that a clamp of this nature requires. Still it is rapid, the special threads advance the jaws nearly a quarter of an inch per revolution.

In the older type of piling clamp, of which our 1905 model "stand of clamps" is a typical example, the individual clamping bars were held in standards which extended vertically from the truck along the rear of the pile. This resulted in a fixed horizontal center distance between the clamps, which greatly restricted their usefulness. In the No. 80 series there is no such restriction, and each clamp may be placed anywhere on the work, and any installation may be used with equal effectiveness on work of any length without limitation. Also it permits the use of an extra clamp here and there to take up a joint or two that for any reason requires additional clamping power.

The flexibility and adaptability have been important contributing factors in the popularity of the No. 80 series of clamps. The limitations of the older types are completely eliminated, making them suitable to practically any edge gluing operation. As shown in the accompanying illustrations, the clamp is unique in the range of thickness it will handle, which feature arises from the fact that the stock is clamped from above and below.

Due to the fact that each alternate tier of clamps may be placed at right angles to the rest, these clamps are suitable for two way clamping on stock whose width does not exceed the lengthwise capacity of the clamp.

THE No. 80 PILING CLAMP (Continued)

Ordinarily on straight production work, a piling clamp system will not equal a clamp carrier in output, and where the volume is sufficient to justify it, a carrier is usually the logical choice. If not, the No. 80 series clamp is the next best thing. Furthermore no clamping system, however expensive, excels it in quality of output.

Occasionally there may be special conditions which would reverse the rule, such as a large percentage of long work beyond the range of

the ordinary carrier, or work with a multiplicity of joints, which tends to minimize the time required to handle the clamps as compared with the time required to handle and arrange the stock. In such cases, the efficiency of the No. 80 system may equal or surpass that of a high grade carrier.

We will be pleased at any time to give prospective purchasers the benefit of our ideas and our experience in the choice of clamping equipment for their purposes.

PRICES AND SPECIFICATIONS

The materials and workmanship entering into these clamps is first quality. Our requirements in the line of steels and other ferrous metals are such that we can purchase in car lots, obtaining not only the most favorable price, but also the exact analysis for each specific application, rolled to our order.

Our No. 80 clamp is made in two weights, the regular and the heavy, and in sizes from 24" long to 48" long. Longer or intermediate sizes are made to order. The regular clamp has jaws 1" deep and $\frac{5}{8}$ " screws. The heavy model $1\frac{3}{8}$ " deep jaws and $\frac{3}{4}$ " screws.

PRICE LIST

Regular Series	Per Doz.	Heavy Series	Per Doz.
No. 80, 24" capacity	\$40.00	No. 81-H, 30" capacity	\$54.00
No. 81, 30" capacity	\$48.00	No. 82-H, 36" capacity	\$60.00
No. 82, 36" capacity	\$54.00	No. 83-H, 42" capacity	\$66.00
No. 83, 42" capacity	\$60.00	No. 84-H, 48" capacity	\$74.00

In considering the cost and specifying the quantity of No. 80 piling clamps, please bear in mind that these clamps are double, and that one dozen is the equivalent of two dozen single clamps.

ADVANTAGES OF THE No. 80 SYSTEM OF PILING CLAMPS

No special trucks, no posts, no auxiliaries of any kind. Nothing to it but the clamp.

Positive screw pressure, no feeble eccentrics. No limit to the length, width or thickness of the stock which may be clamped.

Quality of product unexcelled. Warpage or buckling absolutely prevented.

Versatile; each clamp can be placed anywhere on the stock. It is not necessary to pile directly one above the other.

Where a "hot box" is used to hasten drying of glue, the clamping and drying operations may be separated, insuring comfort of workers.